$$R_2' = R_1 = 32{,}2\ \Omega$$

$$R_2 = \frac{R_2'}{a^2} = \frac{32{,}2}{26{,}25^2} = 0{,}046\ \Omega$$

$R_2 = 0{,}046\ \Omega$

$$a = \frac{U_1}{U_2} = \frac{10{,}5}{0{,}4} = 26{,}25$$

d) Az összes szórási reaktancia:

$$Z_z = \frac{U_{2nf}}{I_{1n}} = \frac{630}{\sqrt{3} \cdot 2{,}2} = 165{,}3\ \Omega$$

$$X_s = \sqrt{Z^2 - R^2} = \sqrt{165{,}3^2 - 64{,}4^2} = 152{,}2\ \Omega$$

$X_s = 152{,}2\ \Omega$

2.2.15. feladat

a) $$a = \frac{U_{1nv}}{U_{2nv}} = \frac{3 \cdot 10^3}{380} = 7{,}895$$

$a = 7{,}895$

$$R_2' = a^2 \cdot R_2 = 7{,}895^2 \cdot 0{,}075 = 4{,}674\ \Omega$$

$$X_{s2}' = a^2 \cdot X_{s2} = 7{,}895^2 \cdot 0{,}1 = 6{,}233\ \Omega$$

$$R = R_1 + R_2' = 4{,}2 + 4{,}674 = 8{,}874\ \Omega$$

$R = 8{,}874\ \Omega$

$$X_s = X_{s1} + X_{s2}' = 7{,}07 + 6{,}233 = 13{,}303\ \Omega$$

$X_s = 13{,}303\ \Omega$

b) $$Z_z = \sqrt{R^2 + X_s^2} = \sqrt{8{,}874^2 + 13{,}303^2} = 15{,}99\ \Omega$$

$Z_z = 15{,}99\ \Omega$

$$I_{n1} = \frac{S_{An}}{\sqrt{3} \cdot U_{1nv}} = \frac{36 \cdot 10^3}{\sqrt{3} \cdot 3 \cdot 10^3} = 6{,}928\ \text{A}$$

$I_{n1} = 6{,}928\ \text{A}$

$$I_{n2} = \frac{S_n}{\sqrt{3} \cdot U_{2nv}} = \frac{36 \cdot 10^3}{\sqrt{3} \cdot 380} = 54{,}696\ \text{A}$$

$I_{n2} = 54{,}696\ \text{A}$

c) $$U_{z1f} = I_{n1} \cdot Z_z = 6{,}928 \cdot 15{,}99 = 110{,}79\ \text{V}$$

$$U_{z1v} = \sqrt{3} \cdot U_{z1f} = \sqrt{3} \cdot 110{,}79 = 191{,}894\ \text{V}$$

$U_{z1v} = 191{,}894\ \text{V}$

$$\varepsilon = \frac{U_{z1v}}{U_{1nv}} \cdot 100 = \frac{191{,}894}{3 \cdot 10^3} \cdot 100 = 6{,}3965\ \%$$

$\varepsilon = 6{,}3965\ \%$

d) $$\cos\varphi_z = \frac{R}{Z} = \frac{8{,}874}{15{,}99} = 0{,}555$$

$\cos\varphi_z = 0{,}555$